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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,281	12/31/2003	Hiroyuki Okuhira	ION-0221	6605

23353 7590 05/03/2005

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EXAMINER

ZIMMER, MARC S

ART UNIT	PAPER NUMBER
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1712

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

ML

Office Action Summary**Application No.**

10/748,281

Applicant(s)

OKUHIRA ET AL.

Examiner

Marc S. Zimmer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 03/03/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

TS

d

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 and 8-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Seiter, U.S. patent # 3,627,722. Seiter discloses a polyurethane sealant containing trialkoxysilyl groups that is prepared by reacting a diisocyanate with a compound having two or more active hydrogens (column 1, lines 52-54) using a molar excess of the isocyanate and, subsequently, reacting the product derived from this first step with a silane compound adhering to the formula at the bottom of column 1 of which alkylaminalkyltrialkoxysilanes are exemplary (column 2, lines 18-20). Relevant to the present discussion, the ratio of isocyanate to active hydrogen containing material is varied depending on whether the sealant composition of which the derivatized polyurethane is a part is formulated as a one-part or two-part composition. (In column 1, lines 63-68, Seiter states that the aforementioned ratio may be as high as 6:1 where the composition is formulated into two-parts and a polyamine or polyol co-reactant represents the second part. The concept of a two part sealant is reiterated at column 3, lines 21-27.) Applicant's molecular weight limitation is inherently satisfied by the prepolymers outlined in the examples in view of the quantities of reactants employed in the hydroxyl number of the polyol reactant employed in synthesizing the prepolymers.

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Concerning claims 3 and 4, aromatic diisocyanates such as 4,4'-diphenylmethane diisocyanate are contemplated at the top of column 3. These materials are aptly described as "secondary" isocyanates insofar as the carbon atom to which the isocyanate group is bound is, in turn, bonded to two other carbon atoms.

Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Ito et al., JP 2001-240844 A. Ito discloses a two-part composition comprising a polyurethane prepolymer derived from a polyisocyanate a mercaptoalkyl-functional silane, and castor oil-based polyol as a first part and a mixture of castor oil-based polyol, optionally one of the polyols mentioned in paragraph 6, and a curing catalyst as the second part. The castor oil-based polyol itself has a molecular weight exceeding 1000 (paragraph 10) so the molecular weight limitation is inherently satisfied.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seiter, U.S. patent # 3,627,722. Seiter doesn't expressly state that the curing catalyst is added to the curing agent part when the composition is formulated as a two-part composition. Nonetheless, the skilled artisan will appreciate that the composition is best formulated with the catalyst in the curing agent part because the catalysts outlined therein will promote not only the addition of the active hydrogen groups of the curative

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to the remaining isocyanate groups of the prepolymer but also condensation reactions involving two equivalents of the hydrolyzable silane where environmental/adventitious water is present. That is, the skilled artisan will appreciate that the most stable combination of materials is that where the catalyst is blended with the polyamine/polyol curing agent and not the silane-functionalized prepolymer.

Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seiter, U.S. patent # 3,627,722 in view of Majolo et al., DE 59 102 651. Seiter does not teach the incorporation of an epoxy resin. Majolo discloses another sealant composition that, like that of Seiter, comprises a silane-functionalized polyurethane prepolymer and also a epoxy resin. According to the abstract for this reference, the combination of the prepolymer and epoxy resin produces a synergistic effect that yields a more weather-resistant bond when coupling glass substrates.

Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al., JP 2001-240844 A in view of Majolo et al., DE 59 102 651. As was the case with Seiter, Ito does not contemplate adding an epoxy resin to their composition. Majolo motivates adding an epoxy resin to impart the same benefit as was mentioned before.

Hovestadt et al., U.S. patent # 5,854,338, Bandlish, U.S. patent # 4,487,319, and JP 2001-214144 A are cited as being of interest. Hovestadt discloses preparing a composition comprising a silane-functionalized polyisocyanate and hydroxy/amino-functional resin. However, the polyisocyanate is not a urethane prepolymer as the claims require. Bandlish discloses a composition comprising a blocked isocyanate-

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terminated urethane prepolymer, a polyamine curing agent, and a silane coupling agent bearing active hydrogen groups. There is no suggestion to pre-react the coupling agent and prepolymer so as to arrive at a compound equivalent to that making up the first liquid of the present invention. The Japanese reference also discloses a composition comprising a urethane prepolymer, silane coupling agent, and polyol crosslinking agent but is silent as to the formation of a silane-modified urethane prepolymer to which is added said polyol.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc S. Zimmer whose telephone number is 571-272-1096. The examiner can normally be reached on Monday-Friday 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

April 26, 2005

Marc Zimmer
Marc Zimmer
AU 1712